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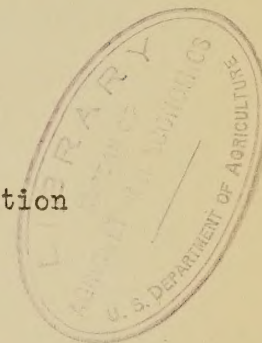
Instructional Plans for  
Teachers of Vocational  
Agriculture

Wheat Series  
Unit Number 2

UNITED STATES DEPARTMENT OF AGRICULTURE  
Agricultural Adjustment Administration  
Division of Information

And

UNITED STATES DEPARTMENT OF THE INTERIOR  
Office of Education, Division of Vocational Education  
Agricultural Education Service  
Cooperating



UNIT NUMBER 2

Plans for developing an understanding of index numbers, the difference between price level and price relationship, and such terms as fair exchange value, parity prices, price ratios, etc.

INSTRUCTIONAL OBJECTIVE

To develop the ability to interpret index numbers, understand the distinction between price level and price relationship, and to understand and use such terms as fair exchange value, parity prices, price ratios, etc.

MATERIALS AND SOURCES

I. Prices of farm products - from "Crops and Markets", Volume 11, Number 11, November 1934, Page 431.

<u>YEARS</u>	WHEAT PER <u>BUSHEL</u> Cents	<u>INDEX</u> <u>NUMBERS</u>	OTHER * <u>COMMODITY</u>	<u>INDEX</u> <u>NUMBERS</u>
5 Yr. Avg. Aug. 1909 to July 1914	88.4			
1930 Oct. 15	65.6			
1931 " "	36.1			
1932 " "	34.6			
1933 " "	63.6			
1934 " "	88.5			

\* Have farmers select prices of any other commodity of most interest to them.





II. Selected index numbers - from "The Agricultural Situation", Volume 18, Number 12, December 1934, Page 21.

<u>YEARS</u>	<u>INDEX NUMBER PRICES RECEIVED BY FARMERS</u>	<u>INDEX NUMBER PRICES PAID BY FARMERS</u>	<u>RATIO OF PRICES RECEIVED TO PRICES PAID</u>
Aug. 1909-July 1914	100	100	100
1917	175	149	117
1918	202	176	115
1921	125	152	105
1927	139	153	91
1932	65	107	61
1933	70	109	64
November 1934	102	126	81

III. Selected Prices of Farm Products - from "The Agricultural Situation", Volume 18, Number 11, December 1934, Page 18.

<u>FARM PRODUCT</u>	<u>5 Year Average AUGUST 1909 TO JULY 1914</u>	<u>NOVEMBER 1934</u>	<u>PARITY PRICE NOVEMBER 1934</u>
Wheat, per bu., cents	88.4	88.1	
Corn, " " "	64.2	75.7	
Hogs, per 100 pounds dollars	7.22	5.04	

Index number for November 1934 of prices paid by farmers for commodities bought. 126. From "The Agricultural Situation, Volume 18, Number 12, December 1934, Page 21.

#### PROCEDURE AND EXPECTED OUTCOMES

I. Place upon the blackboard the prices for wheat as found under No. 1 of Materials and Sources. From "Crops and Markets" select prices for some other commodity in which the farmers have a particular interest.

II. With the prices before the farmers, ask such a question as:

What do these prices mean?

It may be observed that comparisons between the level of prices as of certain dates may be compared. For example, the average price of corn in 1932 was 53.8 cents lower than for the five year average August 1909 to July 1914.

Turn next to the prices for the other commodity, hogs for example. Again comparisons may be made as to the level of prices for hogs as of certain dates.

The next step is to ask the farmers to compare the price of wheat, October 15, 1932, with the price of hogs, for example, as of the same date. Was the price of wheat for October 15, 1932, relatively lower or higher than the





price of hogs for the same date? What is the comparison between the prices of these two commodities and the prices paid by farmers for commodities?

It will be noted that some of the prices are in cents per bushel, others in dollars per 100 pounds, while still other prices are listed in a different manner from these two.

Guide the farmers in concluding that prices are rather hard to compare directly and for that reason some means is needed for making easy and accurate comparisons.

III. Aid the farmers in developing an understanding of index numbers by using a procedure similar to the following:

1. Establishing a base period. It may be demonstrated that when comparisons are made some standard or basis for comparison needs to be selected or established. This may be used as a basis for explaining that economists have studied the relationship between prices and have reached a conclusion that the price relationships during the period from August 1909 to July 1914 may be used as a satisfactory basis for making comparisons of most prices.
2. Guide the farmers in computing some index numbers in order to aid them in understanding the meaning of index numbers.

Write in 100 opposite 88.4, and point out that 88.4 cents, the average price of wheat during the base period, may be assigned a value of 100 and explain that the problem involves finding the value of the other prices of wheat in terms of the base or 100.

Demonstrate how index numbers are determined by using the following equation:

$$\frac{\text{Price at any given time}}{\text{Price during base period}} \times 100$$

Examples

$$\frac{65.6}{88.4} \times 100 = 74.2 \text{ or } 74 - \text{index number for prices of wheat, October 15, 1930}$$

Have the farmers figure the index numbers for the other prices in the table.

3. Reading index numbers

The price of wheat on October 15, 1930, was 74 percent of the base or pre-war period. Have farmers read some of the index figures computed. Compare the index numbers for wheat with the index numbers for the other commodity or commodities selected.





Note: By helping farmers to compute and read these index figures or numbers it may be assumed that the farmer's ability to understand such figures has been developed to some extent. It may be assumed that farmers will be increasingly confronted with tables and charts using index numbers, and for that reason farmers should be able to read and understand such material. At every opportunity give the farmers an opportunity to interpret such material and guide them in developing this ability.

#### IV. Ratio of prices received to prices paid.

The previous material illustrates price level and measures or indices of price level. At this point introduce the following question. It would be well to place the question upon the blackboard.

What is it that determines whether  
or not a price is satisfactory?

Secure from the farmers answers to the question. Do not attempt to settle the question, but develop the discussion to arouse interest and direct attention.

When the time seems appropriate copy upon the blackboard the selected index figures listed under 2, Materials and Sources. Leave blank the column "Ratio of Prices Received to Prices Paid."

Note: Techniques for saving time in presenting tabular material not prepared in regular chart form.

1. Before the group assembles for discussion, place the material upon strips of blackboard that may be hung up. Such blackboard may be prepared by painting heavy brown wrapping paper with ordinary blackboard dressing obtainable from school janitors or school supply firms. All-day students in farm shop can easily prepare in a very short time all the blackboard needed. If material is to be written on the blackboard and erased, first go over the new blackboard surface with an eraser in order to put on a light coating of chalk dust. Blackboard prepared in this manner may be used just like any blackboard. For hangers secure suction disk hangers which will permit hanging the blackboard upon smooth surfaces.
2. Before the group assembles place the tabular or graphic material upon the blackboard. Include all the data and headings except certain items which give the material meaning. Write these in when the material is desired for use. By using such a plan time may be saved and, at the same time, the material does not become "old stuff" by the time it is intended for use. Also if the meaning of the material is not made clear until the time it is wanted, the teacher has much greater control and direction of attention. It is often advisable to have





students make guesses or estimates as to the material left out just to arouse curiosity and quicken attention. Study each table or graph to be so presented for "strategic" headings or figures which may be omitted until just the appropriate time or "psychological moment."

Guide the farmers in determining the meaning of the index figures for prices received and prices paid by farmers. Explain how these figures were obtained in the same manner as the index figures were arrived at for corn and hogs (previous exercise). These index figures are merely more complex because they represent farm prices for many farm commodities and for many commodities farmers buy. Here is an opportunity to point out the services of economists and statisticians.

Reading the index figures: Guide the farmers in reading the figures as for example:

In the year 1917 the prices farmers received were 175 percent of the base period while the prices farmers paid were only 149 percent of the base period. In other words the farmer had an advantage because the money from the sale of the same volume of goods as sold during the base period would buy more goods in 1917 than during the base period. Example: The sale of 100 pounds of hogs in 1917 would bring enough money to buy relatively more goods in 1917 than the sale of 100 pounds of hogs during the base period. In the year 1932 the conditions were reversed and the farmer was at a disadvantage as to prices received and paid.

At this point it would be appropriate to develop a further understanding of the meaning of the index numbers by filling in the column headed "Ratio of Prices Received to Prices Paid."

$$\text{Equation: } \frac{\text{Index of Prices Received}}{\text{Index of Prices Paid}} \times 100 = \text{Ratio of prices received to prices paid}$$

$$\text{For November 1934} = \frac{102}{126} \times 100 = 80.9 \text{ or } 81$$

Have farmers prepare the figures for the column "Ratio of Prices Received to Prices Paid." (Actual prices may be used in the same manner as index numbers in determining such a ratio.)

Reading and interpretation. In November 1934 the prices farmers received were 81 percent of the prices paid. In other words the sale of a given volume of farm commodities would purchase about 81 percent of what it would during the base period.

From the previous work, guide the farmers in arriving at the conclusion that it is not the level of prices that is important but the relationship between prices for different commodities.

Parity Prices. Because many references are made to the term "parity prices" farmers should have an understanding of this term as well as knowing the meaning of index numbers and price ratios.







Place upon the blackboard the material from No. 5 of Materials and Sources. It will be noted that the parity prices have been omitted. With the material before the farmers, ask the following question:

What should have been the price of wheat per bushel for November 1934 in order for farmers to exchange their wheat for the commodities farmers have to buy upon a parity or fair exchange basis?

The parity price or fair exchange value is determined by using the following procedure:

Price of commodity during base period  $\times$  the index number of prices paid for commodities farmers have to buy.

Example: 88.4 average price of wheat during the period August 1909 to July 1914  $\times$   
126 the index number of prices paid by farmers for commodities bought as of November 1934, equals  
111.4

In other words, the parity price of wheat for November, 1934, was 111.4 cents per bushel.

(For purposes of pointing off the proper places, the index number 126 may be interpreted 1.26, thus  $88.4 \times 1.26 = 111.384$  or 111.4)

Computed in such a manner the parity prices as of November, 1934, are as follows:

Wheat - 111.4 cents per bushel  
Corn - 80.9 " " "  
Hogs - 9.10 dollars per 100 pounds

Have farmers determine parity prices for the commodities they are interested in.

Connection to next unit. The work in this unit should enable the farmers to understand fairly well index numbers, price ratios, and parity prices. Make the connection to the next unit by asking a question similar to the following:

What has been the trend during the past few years of price relationships between what farmers have had to sell and what farmers have had to buy?

